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Summary of NEI Assessment Findings

Overview

The Northeast Interceptor (NEI) Improvements study that began in February is now essentially complete. The study evaluates the capacity, condition and reliability of the NEI system and was conducted by Kimley-Horn and Associates (KHA). The Preliminary Engineering Report (PER) summarizes the study and offers conclusions and recommendations for improved reliability of the NEI system. The evaluation included five major components, which are attached in the PER as appendices:

1. Capacity Analysis (Technical Memorandum # 1.)
2. Operational Evaluation (Technical Memorandum # 2)
3. Surge Analysis (Technical Memorandum # 3)
4. Deficiency Identification and Repair Program (Technical Memorandum # 4)
5. Criticality Assessment (Technical Memorandum # 5)

The study found that the major problems in the pipeline seemed to have been addressed, or are in the process of being addressed through current repair efforts. In addition, the study did not find any areas of pipe that appeared to be in imminent danger of failure, but did identify recommended short-term and long-term repair/rehabilitation efforts, as well as a plan for expansion of the line to accommodate future growth.

Pipeline condition

The city's portion of the NEI consists of almost 9 miles of pipeline running from the Hewlett's Creek Pump Station 34 to the Southside Treatment Plant. The pipeline consists of both 24-inch pipe and 20-inch pipe.

The ultrasonic thickness testing of the 24-inch force main indicates that the force main is generally in good condition, with the exception of the portion currently being replaced along Shipyard Boulevard. The good condition overall is largely due to the fact that the portion of the force main that is most susceptible to corrosion has already been replaced with PVC.

Short-term repairs

Although no imminent repairs were found to be needed during the study, KHA does recommend several short-term repairs:

1. Installation of release valves at all current air release valve locations. Install new air vault vaults at two locations where concrete vaults were found to be inadequate.
2. Replace approximately 2000 feet of 20-inch force main along Greenville Loop Road in the vicinity of Shinwood Road. If significant corrosion is encountered, continue pipe replacement to the Greenville Trailer Park force main connection. This would add an additional 645 feet of pipe replacement.
3. Replace the existing New Hanover county junction box at Pump station 35 with a larger box to eliminate or minimize the turbulent conditions of the wastewater stream.

4. Rehabilitate a segment of 20-inch force main from near the entrance of Oakmont Apartments to Manhole C located on Pine Grove Drive. Install 24-inch gravity sewer from manhole C to the Pump Station 34 influent manhole and replace the manhole upstream of Pump Station 34 to reduce or eliminate turbulent conditions.

These short-term repair costs are estimated to cost \$1,860,000 and are expected to occur within the next eight months.

Pipeline Capacity

Because the capacity of the system has been exceeded at Hewlett's Creek Pump Station 34, KHA has recommended the following:

- Resolve the direction of future flow from Major Basin II (in conjunction with NHC).
- Redirect flows from Major Basin I to the Northside WWTP as soon as possible (in conjunction with NHC).
- Proceed with selection of an alternative and design of capacity improvements as soon as possible.

Cost of Improvements

To implement the recommendations outlined in the PER, a capital budget of \$26.3 to \$33.9 million over the next four years is recommended, depending on whether Major Basin II is included or excluded. Both alternatives involve expansion of Pump Station 35 and installation of a parallel force main to the Southside Plant.

This cost includes: the short-term repair costs outlined above, the recommended 3-5 year improvements, the long-term recommended repairs, the pipeline expansion, and the recommended pump station upgrades and expansions.

The complete report, along with the associated technical reports, can be viewed on the city's website at www.wilmingtonnc.gov on the Sewer System Improvements page. See the "7/06 Sewer Update" link on the right side of the Sewer Improvements page.